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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/065,597	11/01/2002	Lifeng Xu	202-0882	2442

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DEARBORN, MI 48126

EXAMINER

TRAN, DIEM T

ART UNIT	PAPER NUMBER
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3748

DATE MAILED: 02/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/065,597

Applicant(s)

XU ET AL.

Examiner

Diem Tran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 23 November 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-9, 11-17, 19-21, 28-31, 33-35, 37-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 2-9, 11-17, 19-21, 28-31 and 33-35 is/are allowed.
- 6) ☒ Claim(s) 37-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

- This office action is in response to the amendment filed on 11/23/04. In this amendment, claims 1, 10, 18, 22-27, 32, 36 have been canceled. Overall, claims 2-9, 11-17, 19-21, 28-31, 33-35, 37-44 are pending in this application. Upon further search and consideration, the examiner has withdrawn the indicated patentable subject matter of claim 40; therefore, a new non-final rejection is set forth below.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 38-40, 42, 43 are rejected under 35 U.S.C. 102(b) as being anticipated by

Takahashi et al. (US patent 6,237,330).

Regarding claim 40, Takahashi discloses a method for controlling temperature of an internal combustion engine exhaust gas aftertreatment device, such method comprising:

operating first and second portion of a plurality of engine cylinders at a rich and lean air fuel ratio (i.e. at a first and second torque output) when the temperature in the aftertreatment device is not within a desired temperature range wherein the overall torque output of the engine is substantially an operator demanded torque and said first portion of the cylinders is coupled to the aftertreatment device, wherein said operator demanded torque is based on a position of an accelerator pedal (see col. 4, lines 45-65, col. 5, lines 26-29, col. 7, lines 36-42).

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Regarding claim 38, Takahashi further discloses that said temperature is based on an output from a temperature sensor (35) located proximate to said aftertreatment device.

Regarding claim 39, Takahashi further discloses that said temperature is based on a model of aftertreatment (see col. 5, lines 30-31).

Regarding claims 42, 43, Takahashi further discloses that said exhaust aftertreatment device is a lean NOx catalyst, the desired temperature range is greater than an activation temperature of said lean NOx catalyst and the first torque output is greater than a second torque output (since the rich air fuel ratio usually provides higher torque than that of the lean air fuel ratio) (see col. 4, lines 45-65, col. 7, lines 36-42).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 41 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi et al. (US patent 6,237,330) in view of Beutel et al. (US patent Application Publication 2004/0040287).

Takahashi discloses all the claimed limitations as discussed in claim 40 above; however, fails to disclose that said exhaust aftertreatment device is a particulate filter, the desired temperature range is a temperature greater than an ignition temperature of particulate matter

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collected in said particulate filter. Beutel further discloses that said exhaust aftertreatment device is a particulate filter, the desired temperature range is a temperature greater than an ignition temperature of particulate matter collected in said particulate filter (see page 11, part [0107], lines 4-7).

It would have been obvious to one having ordinary skill in the art at the time the invention was made, to have utilized the teaching of Beutel in the Takahashi method, since the use thereof would have reduced the particulate matter in the exhaust gas.

Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi et al. (US patent 6,237,330).

Takahashi discloses all the claimed limitations as discussed in claim 40 above; Takahashi further discloses that said exhaust aftertreatment device is a lean NOx trap and the first torque output is greater than the second torque output (see col. 4, lines 45-65); however, fails to disclose that the desired temperature range for causing SOx to desorb from said lean NOx catalyst is a temperature greater than 650°C.

It is notoriously well known to those with ordinary skill in the art that a temperature range for causing SOx to desorb from said lean NOx catalyst is a temperature greater than 650°C. Accordingly, it would have been obvious to one having ordinary skill in the art to have raised the temperature of the catalyst to 650°C to desorb the SOx from the catalyst.

Allowable Subject Matter

Claims 2-9, 11-17, 19-21, 28-31, 33-35 are allowed.

Claim 37 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication from the examiner should be directed to Examiner Diem Tran whose telephone number is (571) 272-4866. The examiner can normally be reached on Monday -Friday from 8:30 a.m. - 5:00p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion, can be reached on (571) 272-4859. The fax number for this group is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 800-786-9199 (toll-free).

DT
February 4, 2005



Diem Tran
Patent Examiner
Art unit 3748



THOMAS DENION
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700